Quantel medical

Aviso

OPHTHALMIC ECHOGRAPH

BIOMETRY AND IOL CALCULATION

SERVICE MANUAL

XE AVI MT AN **APRIL 2009**

QUANTEL MEDICAL SAS
Head Office : 21, rue Newton, Z.I. du BREZET
63039 - Clermont-Ferrand cedex 2 - FRANCE
Tel: +33 (0) 473 745 745 - Fax: +33 (0) 473 745 700
E-mail: contact@quantel-medical.fr
Web site: www.quantel-medical.fr

WARRANTY :

- For safety reasons, Quantel Medical considers the instrument CPU Board as whole part.

Defective CPU Board will be returned to Quantel Medical as a whole for replacement.

Any faulty component will be replaced by a strictly identical component.

- Quantel Medical shall not be liable for any intervention or attempt to repair the "CPU Board" should any incident or breakdown occur.

The guarantee of the equipment will be void if the equipment is opened (even partially), modified or repaired in any way by persons who are not authorised by Quantel Medical.

In case of user or equipment problems, call Quantel Medical Service department :

Quantel Medical SAS

Head Office: 21, rue Newton, Z.I. du BREZET
63039 Clermont-Ferrand Cedex 2 - FRANCE
Tel: +33 (0) 473 745 745
Fax: +33 (0) 473 745 700
E-mail: contact@quantel-medical.fr

Quantel Medical Inc.

601, Haggerty Lane
BOZEMAN MT 59715 USA
Tel: +1 888 660 6726 Fax: +1 406 586 2924
E-mail : info@quantelmedical.com

TABLE OF CONTENTS

	Page	Rev 04-09
Warnings	3	
Table of contents	4	X
1- MAIN UNIT AND ACCESSORIES	**5**	**X**
2- TECHNICAL SPECIFICATIONS	**6**	**X**
2-1 Classification	6	
2-2 Electrical requirements	6	
2-3 Compliance	6	
2-4 Dimensions	6	
2-5 Environmental conditions	6	
2-6 Minimum requirement of computer	7	
3- OVERALL BLOCK DIAGRAM	**8**	
4- DISASSEMBLING	**9**	
4-1 Cover removal	9	
4-2 Device subsystem	10	
4-2-1 Touch screen block and CPU board	10	
4-2-2 Interface board	11	
4-2-3 Power supply board	12	
4-3 Special unmounting and mounting	13	
4-3-1 Touch screen block disassembling	13	
4-3-2 Touch screen block assembling	15	
5- MAINTENANCE	**17**	
5-1 Touch screen calibration	17	
5-2 Fuse replacement	18	X
5-3 A-probe calibration	18	X
6- SOFTWARE	**21**	**X**
6-1 Database	21	
6-1-1 Saving for the 1.x software version	21	
6-1-2 Saving for the 2.x software version	21	
6-1-3 Saving for the 3.x software version	21	
6-1-4 Upgrade the 1.x software version database	22	
6-2 Release of the module software	23	
7- VALIDATION	**28**	**X**

1 - MAIN UNIT AND ACCESSORIES

PARTS LIST	
CODE	**DESIGNATION**
XE AVI CAV	Face cover
XE AVI CAR	Rear cover
XL VIT BOUTON	Power button
XE AVI CPU PCB	CPU board
XE CT2 POW	Power board
XE AVI PEM	Power empty modul
XE AVI ERM PCB	Video board
XL VIT ECRAN	LCD screen
XL VIT DALLE	Touch screen
XL VIT APP DALLE	Touch screen strip support

ACCESSORIES LIST	
CODE	**DESIGNATION**
XE AVI PSD	Probe holder with test block
XE AVI PSD2	Probe holder with test block (with one place for 10 MHz B-probe)
XE PRB BIO PC	TP-01 probe + CD-ROM (parameters)
XE PRB BIOL PC	TP-02-las probe + CD-ROM (parameters)
XE PRB 10 PC2	10 MHz B-probe
XE PRB 20 FC PC	20 MHz B-probe short focus
XE PRB 20 FL PC	20 MHz B-probe long focus
XE PRB 25 LIN PC	25 MHz Linear probe
XE PRB 50 LIN PC2	50 MHz Linear probe
XE PRB FEN2	10 movable windows (with film) for LIN50 probe
XE AAA PED	Footswitch
XE AVI VALISE	Carrying case for Aviso

2- TECHNICAL SPECIFICATIONS

2-1 CLASSIFICATION

The system is intended for continuous operation and has the following classification:

- **Electric security class:** EN 60 601-1 Standard
- **Protective class:** I
- **Type:** B

2-2 ELECTRICAL REQUIREMENTS

Power supply: 100 to 240 V~ ±10% single-phased
Frequency: 50 / 60 Hz

Note: "~" symbol means alternating current.

Maximum power consumption: 100 VA maximum.

2-3 COMPLIANCE

- Power supply and enclosure designed per:	**IEC 60 601-1**
- European Directive:	**93/42/CEE**
- Electromagnetic compatibility:	**IEC 60 601-1-2**

2-4 DIMENSIONS

Global size:	Width:	17 cm	(6.69 in)
	Depth:	18,8 cm	(7.40 in)
	Height:	19 cm	(7.48 in)
User interface touch screen:		8,6 x 11,5 cm	(3.39 x 4.53 in)

2-5 ENVIRONMENTAL CONDITIONS

The temperature of the room where the device is operated must be within the following range:

10 °C < T° < 35 °C (50°F < T° < 95°F)

The relative humidity must not exceed **95%** without condensation.

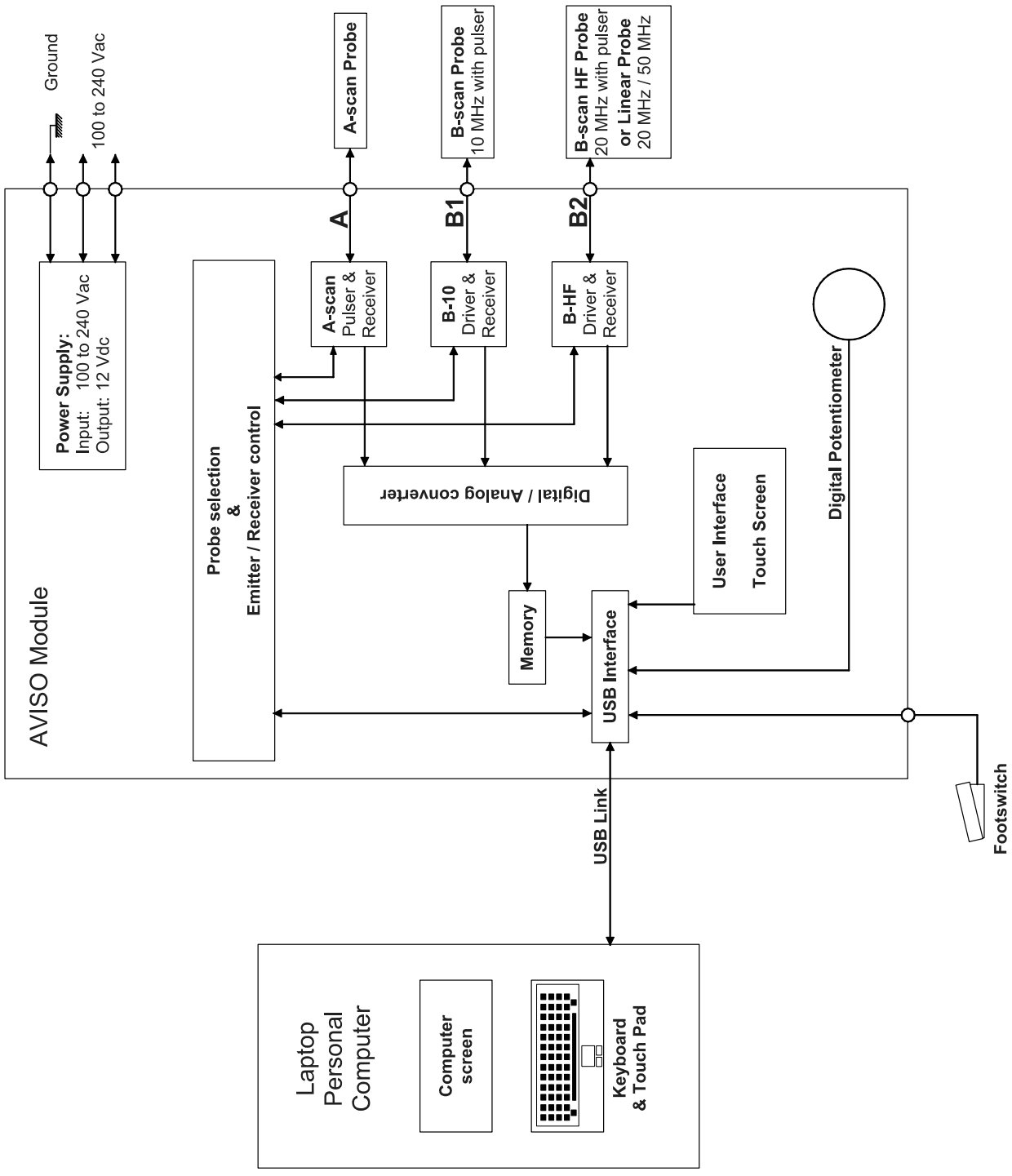
The Device storage and transport temperature must be within the range:

-20 °C < T° < 70 °C (- 4°F < T° < 158°F)

2-6 MINIMUM REQUIREMENT OF COMPUTER

Processor	Intel® Pentium® IV 2 GHz or higher Intel® Pentium® Centrino® 1,6 GHz or higher AMD® Athlon® 2 GHz or higher
Screen format	16/9 or 16/10 format - 15.4" WUXGA (1920 x 1200) - 20" WSXGA+ (1680 x 1050)
Operating System	Microsoft® Windows® XP Professionnal (SP2) Microsoft® Windows® Vista 32
Memory	1 Go DDR SDRAM or higher
Graphic Card	128 MB RAM hardware compatible with DIRECTX® 9.0 or higher
Boot Hard Drive	60 Go ATA-100 IDE (7,200 tpm) minimum
Peripherals	8x DVD-ROM or 48x CD-ROM 2 USB 2.0 ports minimum

3- OVERALL BLOCK DIAGRAM



4-1 COVER REMOVAL

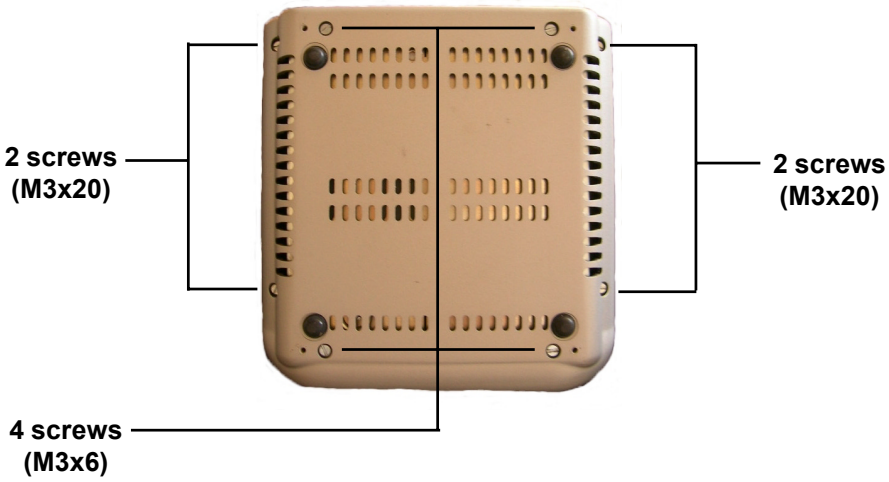
BEFORE ANY INTERVENTION on the AVISO unplug the mains cord at its back. Remove all connections.

To remove the cover:
- Remove the power button (front face) and the button allows the fixing of the probe holder (rear face)
- Unscrew the 8 screws on the bottom face (see below).
- Unscrew the 2 screws on the rear face (see below).

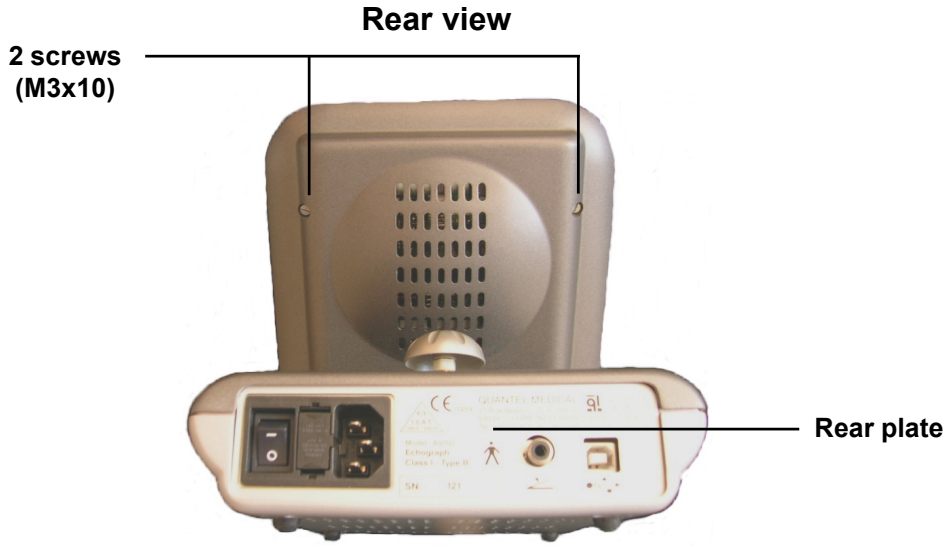
- Remove with care the cover, by pulling it.
- Put the cover and the back on a soft material to protect the cover paint.
- Remove the rear plate.

- Proceed reverse to re-mount the cover.

Bottom view



Rear view



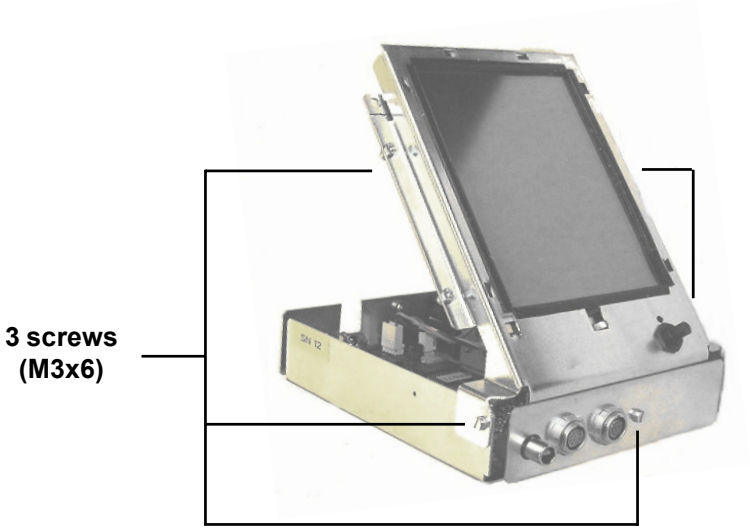
4- DISASSEMBLING

4-2 DEVICE SUBSYSTEM

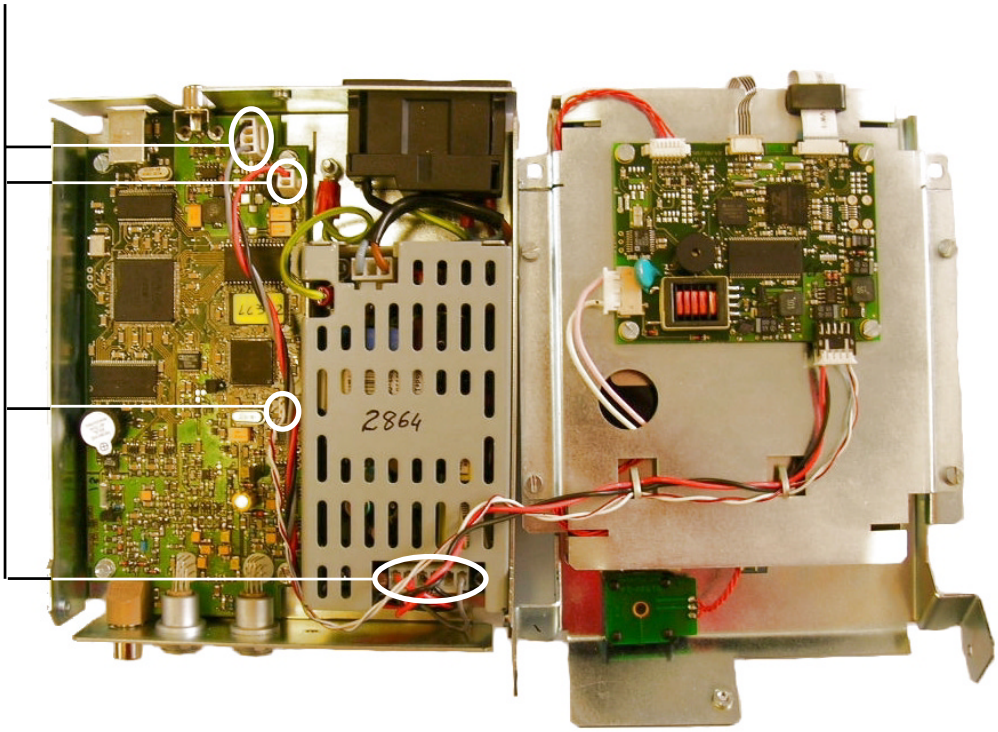
4-2-1 TOUCH SCREEN BLOCK AND CPU BOARD

WARNING : The touch screen is very fragile.

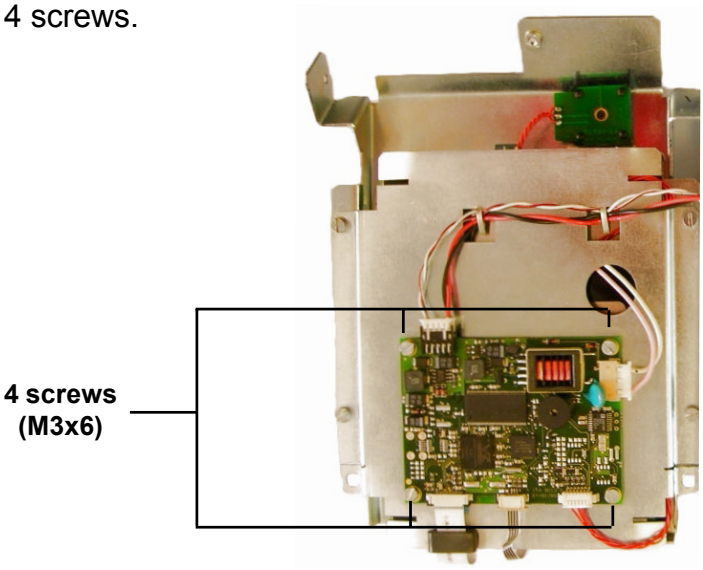
Unscrew the 3 screws (see below).



Unplug the 4 cables.

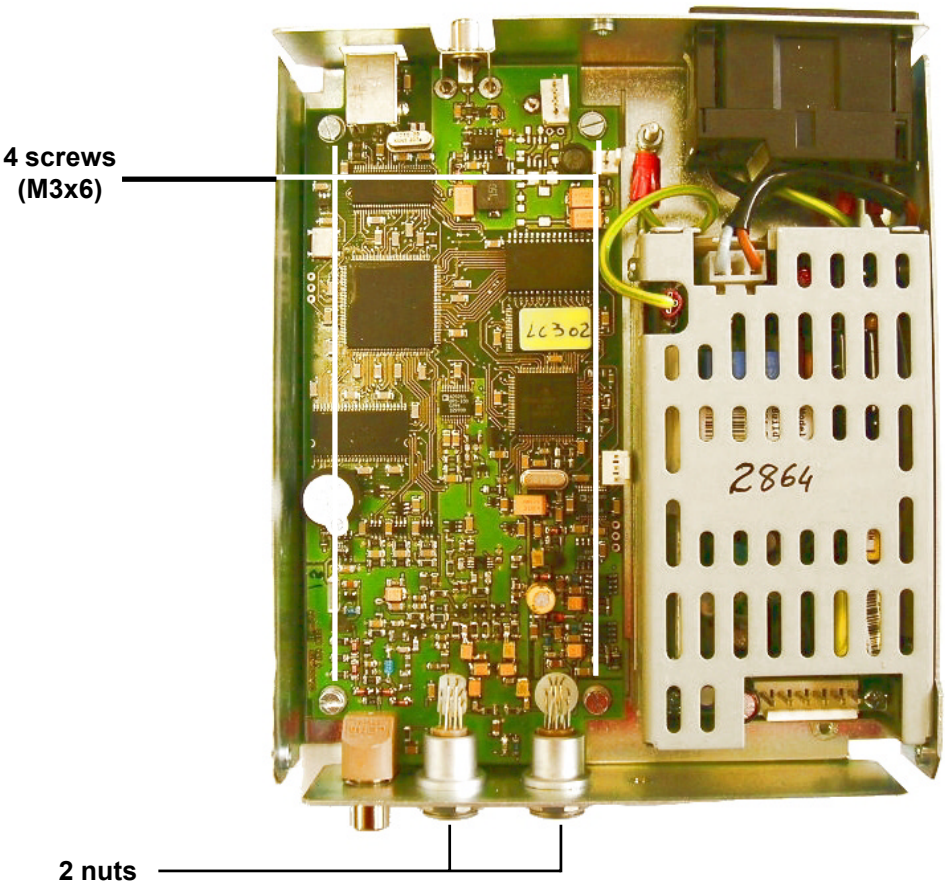


The CPU board is situated on the back screen chassis.
Unscrew the 4 screws.



4-2-2 INTERFACE BOARD

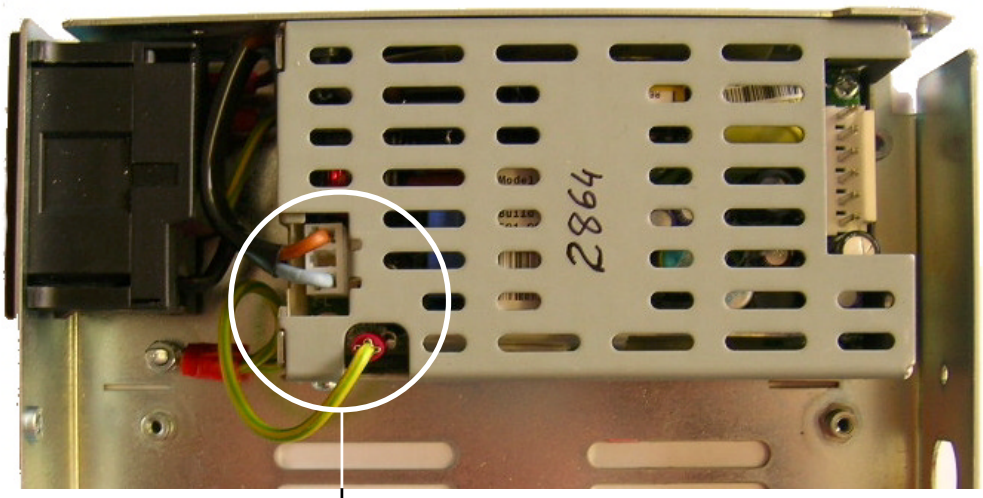
Remove the 2 nuts of the B-probes connectors with (for example) a flat pliers.
Unscrew the 4 screws.

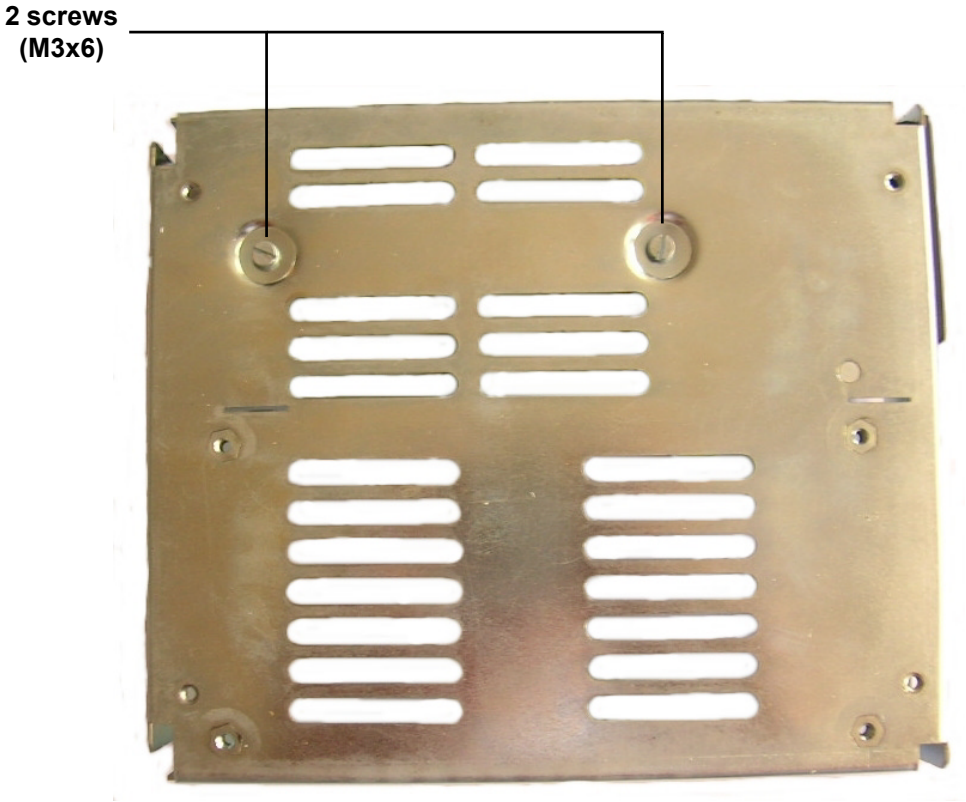


4- DISASSEMBLING

4-2-3 POWER SUPPLY BOARD

- Disconnect all connectors and unscrew the 2 screws on the rear face.

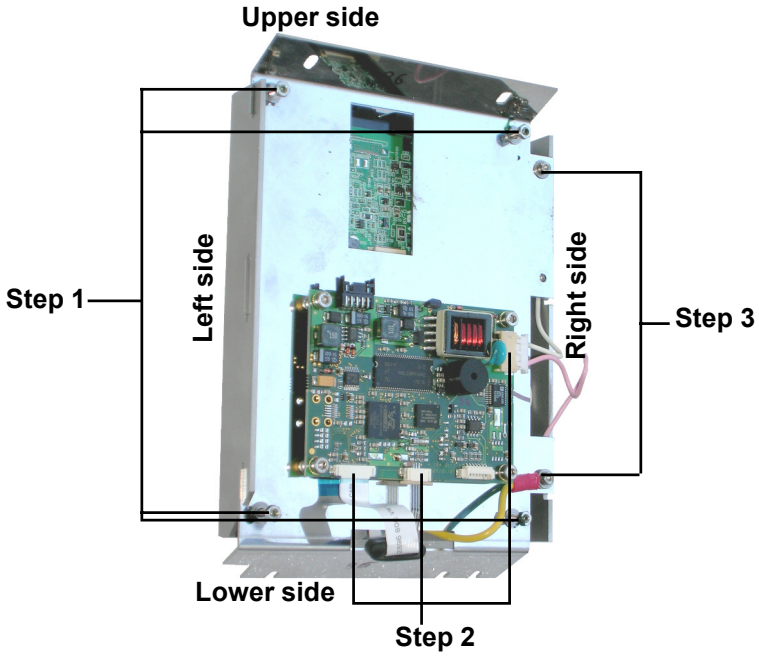




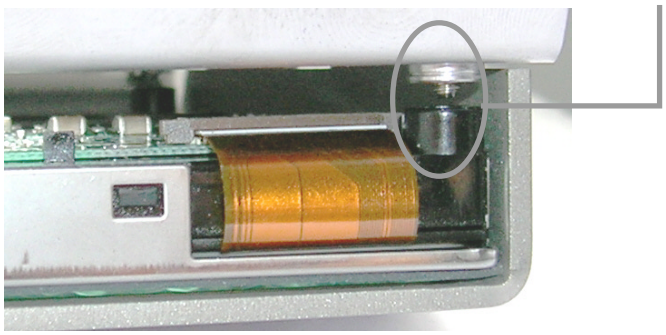
4-3 SPECIAL UNMOUNTING AND MOUNTING

4-3-1 TOUCH SCREEN BLOCK DISASSEMBLING

WARNING : The touch screen is very fragile and the replacement of any components must be done following the procedure below. Perform it in comfortable space with care to avoid any damage.



Step 1 :
With an 1.25 Allen key, unscrew the 4 screw rods until to liberate it from their housing on the back LCD screen. See below.



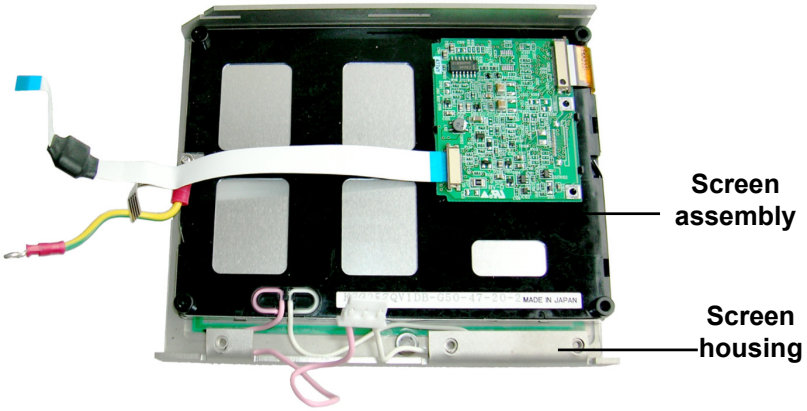
Step 2 :
Unplug the 3 cables.

Step 3 :
Unscrew the 2 nuts.

4- DISASSEMBLING

Step 4 :
Lift up lightly the right side of the metallic chassis.
Pull it slightly to release the plate from the screen housing.

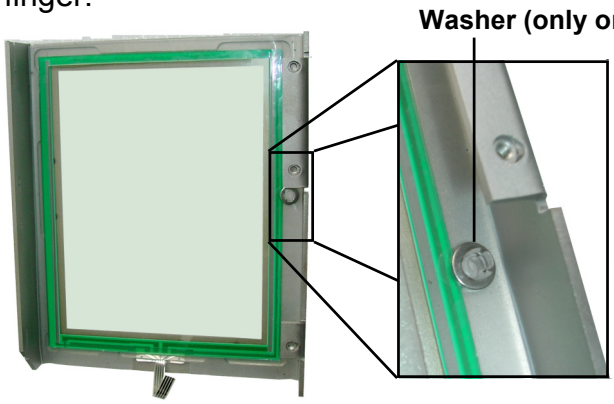
Take care to the flat cable who get through the support. Slide it out.



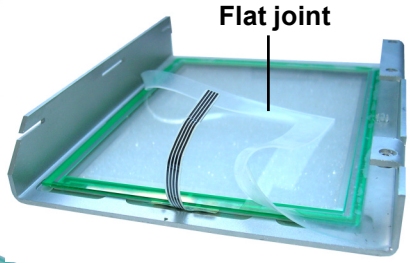
Step 5 :

WARNING : the manipulations come sensible for the touch screen.

Lift up the screen assembly keeping in place the silicon flat joint with a finger.



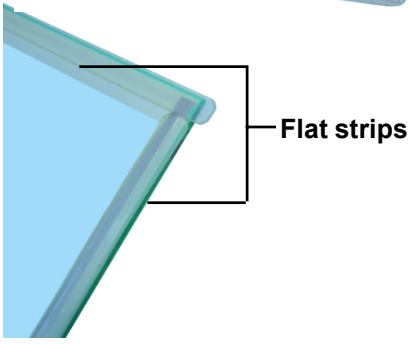
Step 6 :
Remove the metalic or plastic washer if it is present.



Step 7 :
Remove the silicon flat joint.

Step 8 :
Remove the touch screen.

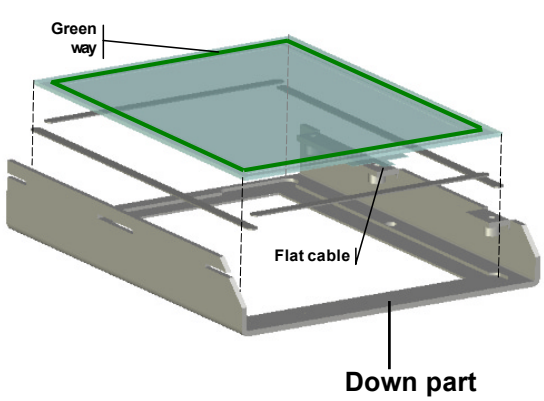
Step 9 :
Remove the 3 or 4 silicon flat strip joints.



4-3-2 TOUCH SCREEN BLOCK ASSEMBLING

The new tactile glass must be replaced with 3 new flat strip joints and one new flat joint.

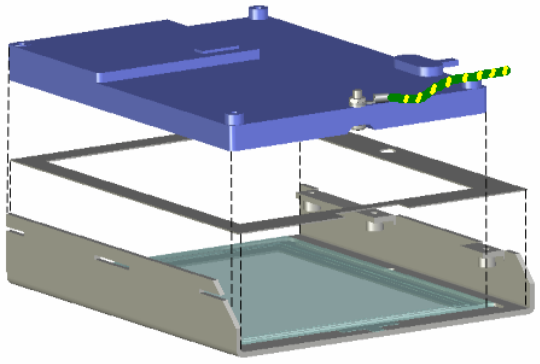
1. Place the 3 new flat strip joints on the metalic support. Place the short strip on the down part of the metallic piece.
   Take care to have the strips layed flat and not superimposed.



2. Place the tactile glass carefully with the green way above

3. Place back the flat joint. The washer doesn't need to be placed back.

4. Place back the screen upon the flat joint.



The critical step is the positioning of the cover upon the screen

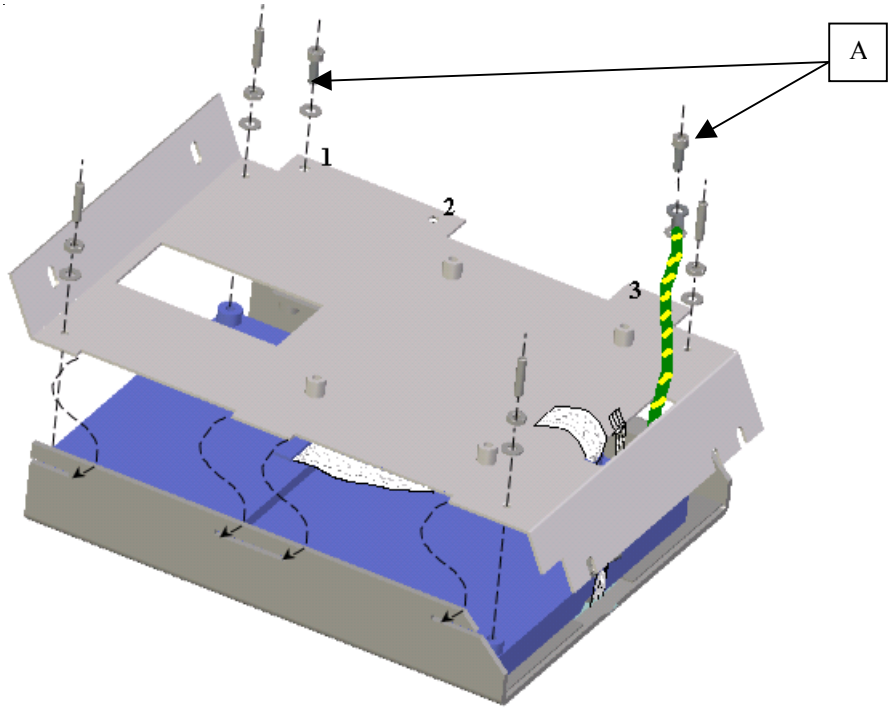
1. Place the cover sliding carefully the cables inside the aperture.

2. Place 2 screws identified A on the picture without screwing them completly in the way to pre position the cover.

3. Approach the 4 screw without head gently inside there screen housing and let absolutly 3 or 4 mm outside of the cover.

WARNING : **Never tighten hardly these screws.**

4- DISASSEMBLING



4. Tighten completly the 2 screws A.

5. Continue to slide the 4 screws without heads inside the tubes by screwing without never tight them. The pressure of these screws on the glass must be at the minima.

WARNING : **Never tighten hardly these screws.**
A too high pressure of the screw rods on the screen can break the tactile glass or causes disfunctioning of it.

6. When the screws are in a ligth contact with the top of the tube, keep the screws in position with an Allen key and lock this position with the nuts.

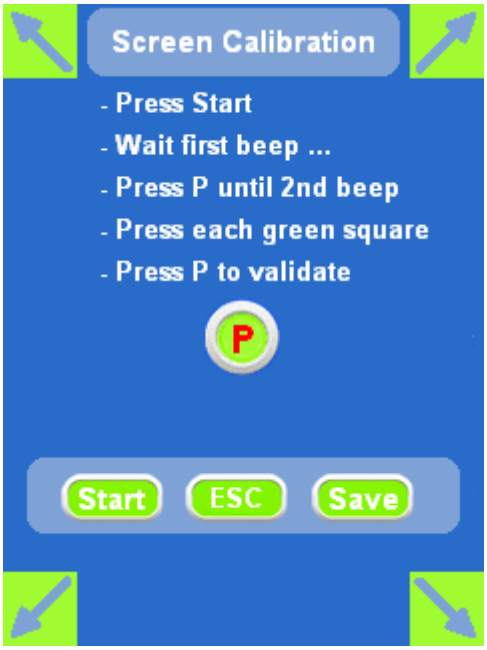
CAUTION : **After the screen assembly mounting, a touch screen calibration must be performed (see chapter 5-1 Touch screen calibration).**

5-1 TOUCH SCREEN CALIBRATION

The position of the touch-screen-sensitive area can be calibrated.
It can be necessary after a transport, a screen assembly changing, a software upgrade or other wich could change the touch screen calibration.

This calibration can be done only if the Aviso software on thce computer is not started or if the Aviso and the computer are not linked.
Switch ON the Aviso and wait for the home page to display.
Turn the power knob clockwise until '**Calibration**' displays on the screen.

NOTE : **Read the entire procedure before to start.**



1- Press the '**START**' button.

2- Wait for the first beep;
it is the begining of the calibration procedure.

3- Press '**P**' until to hear the second beep.

4- Then press successively the 4 screen corners.
Each time a corner is pressed, repetitive beeps will be hear.
It means that the screen pressure is correctly recognized.
Go to the following corner.

NOTE : **To obtain a better result, it is recommended to press the screen with a thin plastic stick, like a PDA pencil.**

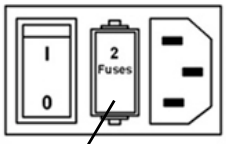
5- Press '**P**' again to complete the procedure.

6- At the end, you can save the new calibration and exit by '**SAVE**' (the screen comes back to the home page), abort the procedure by '**ESC**' or start it again by '**START**'.

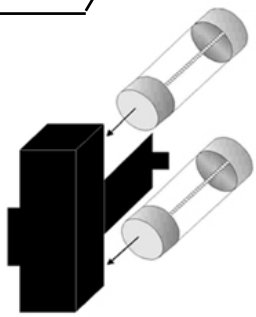
5- MAINTENANCE

5-2 FUSE REPLACEMENT

CAUTION: Disconnect the power cord before any intervention on the instrument.



With a screwdriver pull the main fuses block at the rear of the Aviso.



Fuses specifications:

- Glass fuses
- 1 AT - 250V
- 5 x 20 mm

5-3 A-PROBE CALIBRATION

Biometry and ProBeam probes can be installed and used on the 3.0 Aviso software, without doing a calibration between each use of the probe.
A calibration can be performed for each probe, and permits to get the correct position of the first marker in Contact.

Important: **After installing the new software version, the calibration of the probes is not saved (due to the modification of the biometry and probeam controls), so you have to perform the biometry calibration for each probe: Biometry and ProBeam probes. Before to upgrade, you can note the zero parameters and the cursor position, then perform the upgrade and insert the noted parameters, but you have to check the calibration is correct.**

Procedure:

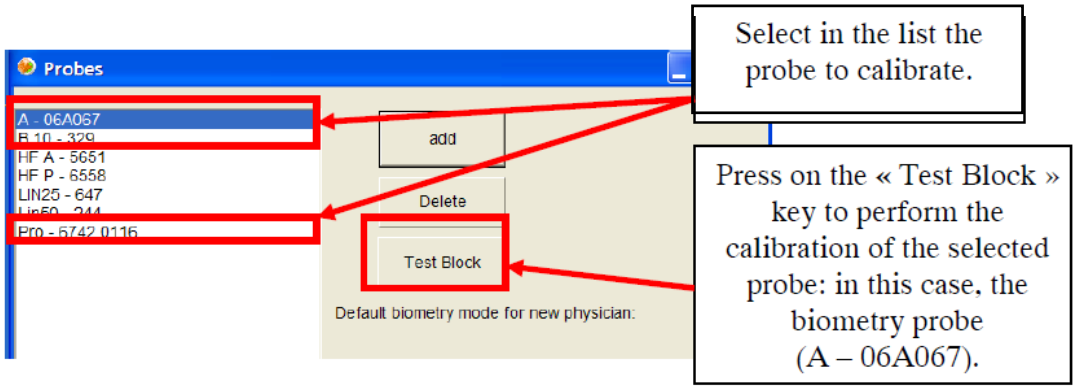
• Run **« Aviso_Setup.exe »** software, in the **« C:\Program Files\Quantel Medical\Aviso »** directory.
• Click on **« Setup »** and select **« Probes »** tab,

If no biometry and/or ProBeam parameters have been installed, you have to:

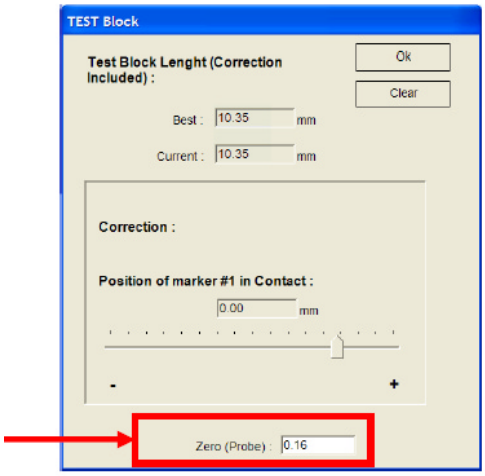
Click on the **« Add »** icon,
Select the CD-Rom drive,
Select the **« .prb »** file,
Click on **« Open »**, the probe is added in the list.

If the biometry and/or ProBeam parameters are installed, you have just to perform the calibration of each probe:

Select the probe to calibrate in the list, (the selected probe is highlighted in blue),
Click on the **« Test Block »** key to perform the probe calibration of the selected probe and get the correct position of the first marker.


Probes
A - 06A067
HF A - 5651
HF P - 6558
LIN25 - 647
Pro - 5742 0116
add
Delete
Test Block
Default biometry mode for new physician:
Select in the list the probe to calibrate.
Press on the « Test Block » key to perform the calibration of the selected probe: in this case, the biometry probe (A – 06A067).

The following window is opened, by clicking on the « Test Block » key: the Zero (Probe) value is set at 0.16mm by default.

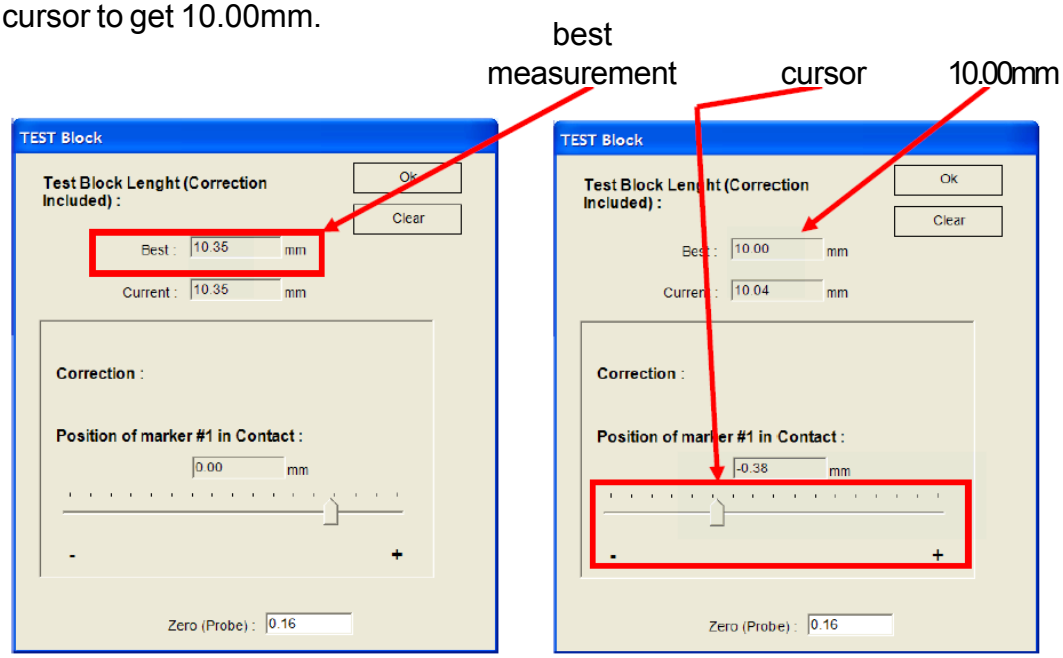


The Zero (Probe) field is only displayed with the **« Aviso_Setup.exe »** software.
This adjustment is reserved to technician people only.

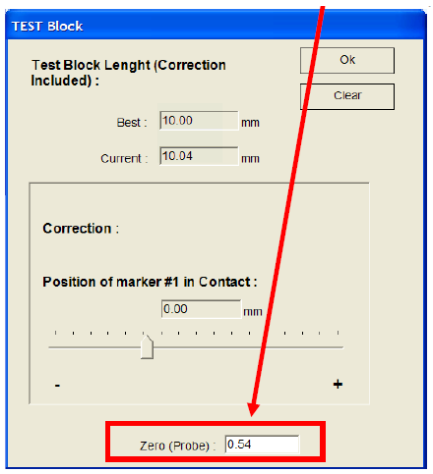
5- MAINTENANCE

Put a drop of water on the tip of the probe, and put the tip of the probe on the test block.
You have to measure 10.00mm on the test block in the « Best » field, which corresponds to the minimum measured value: when the probe is well perpendicular and in the centre of the test block.
If you do not measure 10.00mm, you have to adjust the « Position of Marker #1 in Contact » and the zero field to get 10.00mm in the best field (in the current field, you can display between 10.00mm and 10,08mm, depending of the probe position on the test block).

In the below example, the best measurement is equal to 10.35mm, adjust the cursor to get 10.00mm.



The correct adjustment displays a value of « -0.38 » in the « Position of Marker #1 in Contact » field, you have to subtract this value to the Zero (Probe) value: that is to say: 0.16 – (-0.38) = 0.54.
Fill the Zero field with the « 0.54 » value, the cursor field is automatically set to 0:



Check the correction is ok, by measuring the test block again. If not, you have to perform again the calibration.
Ok: permits to save and validate the calibration,
Clear: permits to erase the Best and Current values.

6-1 DATABASE

6-1-1 SAVING FOR THE 1.X SOFTWARE VERSION

To save the database on the 1.x software version, you only have to save the ***BusBdataAxl.mdb*** file. This one is located under the following folder:

C:\Program Files\Quantel Medical\Aviso

6-1-2 SAVING FOR THE 2.X AND SOFTWARE VERSION

To save the database on the 2.x software version, you have to save the following file and folders (located under the C:\Program Files\Quantel Medical\Aviso folder):

- ***BusBdataAxl.mdb*** file, which contains the Physician and Patient files, probe calibration, keycode…
- ***Cineloop*** folder, which contains all the cineloop saving,
- ***Data*** folder, which contains all exams of the patient, classed by Physician and Patient names,
- ***Probes*** folder, which contains the probe parameters.

6-1-3 SAVING FOR THE 3.X SOFTWARE VERSION

To save the database on the 3.x software version, you have to save the following file and folders:

- ***BusBdataAxl.mdb*** file, which contains the Physician and Patient files, probe calibration, keycode…
- ***Cineloop*** folder, which contains all the cineloop saving,
- ***Data*** folder, which contains all exams of the patient, classed by Physician and Patient names,
- ***Probes*** folder, which contains the probe parameters.

These ones are located:

If the Operating System is Windows® XP or Vista 32 bits (with the UAC not activated): C:\Program Files\Quantel Medical\Aviso

If the Operating System is Windows® Vista 32 bits (with the UAC activated): C:\Users\Quantel Medical\AppData\Local\VirtualStore\Program Files\Quantel Medical\Aviso

Note: « AppData » folder is a hidden folder, you have to type completely the name.

6- SOFTWARE

6-1-4 UPGRADE THE 1.X SOFTWARE VERSION DATABASE

The « UpdateAvisoDatabase » software permits to update the Aviso database (BusBdataAxl.mdb file) of the 1.xx software version to the 2.xx or 3.xx software version.
If the software version installed on the computer is 2.xx, you have not to use the « UpdateAvisoDatabase » software to upgrade the Aviso software in the 3.xx software version.

For a database upgrade (with Windows® Vista 32 bits), the UAC has to be un-activated:
The « UpdateAvisoDatabase.exe » cannot be used when the UAC is activated.
You have to un-activated the UAC then the above mentioned folders will still be present in the « C:\Program Files\Quantel Medical\Aviso » directory, even the new created physicians, patients and data (the « UAC » has to be kept un-activated, to use the Aviso software and be able to write in the « Program Files » directory).

To un-activate the UAC (User Account Control), you have to select:

Control Panel,
User Accounts,
Turn User Account Control on or off,
Un-select the « Use User Account Control (UAC) to help to protect your computer » (to un-activate the UAC function).

To upgrade the database, open the folder *C:\Program Files\Quantel Medical\Aviso*, run the UpdateAvisoDatabase software and follow the procedure.

6-2 RELEASE OF THE MODULE SOFTWARE

The 3.0.0 Aviso software permits to differentiate the Biometry and Probeam probes, and avoid performing a biometry exam with the calibration of the second installed probe: **if the user does not select the correct probe, an incorrect measurement will be present in contact mode**.

The probe can be differentiated by:

The name of the probe:

- "A" for the biometry probe (reference Tp-01 or Tp-01-b: with L.E.D.),
- "Pro" for the ProBeam (reference Tp-02-las: with laser diode),

The colour inside the icons,

- Black for the biometry probe,
- Red for the ProBeam probe.

Biometry Icon:

A

ProBeam Icon:

Pro

Note:

For a new Aviso order, the new icons will be present in the Aviso software, in the Aviso module and in the CD-Rom parameter of the probe.

For an upgrade of the unit (on the field), the new software will permit to upgrade the icons in the Aviso software, but the icons colour will not be upgraded, because the colour is controlled by the CDRom parameter of the probe, so the icons will be without colour, and displayed as below:

Biometry Icon:

On version:

Off version:

Concerning the icons of the Aviso module, you can upgrade the software of the Aviso module itself to display the correct icons.
The upgrade is not obligatory, the Aviso software (in the computer) can work without upgrading the Aviso module, but the icons difference permits to avoid the user inverses the probe selection, which will occur a measurement error.

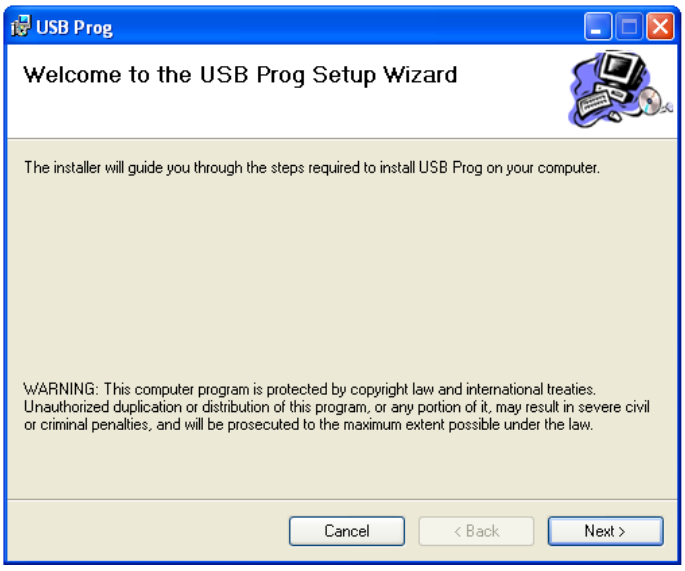
Please contact Quantel Medical, to get the new CD-Rom parameters of the probes (please transmit us the serial number of the probes), to get the correct colour of the icons, the probe calibration is necessary after installing the parameters.

See after to ***Release of the module software***.

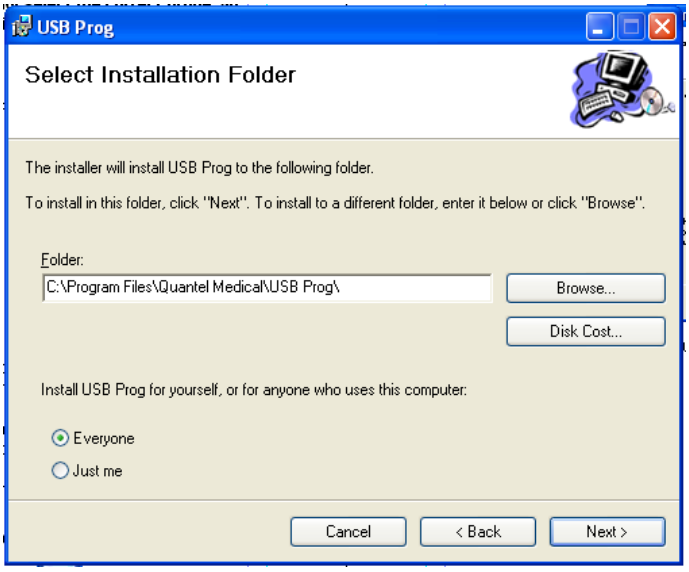
6- SOFTWARE

Installation of the upgrade software on the computer:

On a computer (with Windows® XP **ONLY**), extract the **UsbProg** file and run the ***Setup.exe***. The following window is opened:


USB Prog
Welcome to the USB Prog Setup Wizard
The installer will guide you through the steps required to install USB Prog on your computer.
WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any portion of it, may result in severe civil or criminal penalties, and will be prosecuted to the maximum extent possible under the law.
Cancel
< Back
Next >

Click on the ***Next*** button, the following window is displayed:

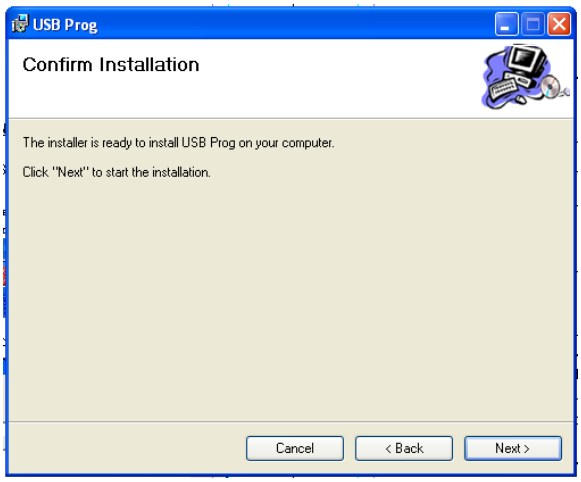

USB Prog
Select Installation Folder
The installer will install USB Prog to the following folder.
To install in this folder, click "Next". To install to a different folder, enter it below or click "Browse".
Folder:
C:\Program Files\Quantel Medical\USB Prog\
Browse...
Disk Cost...
Install USB Prog for yourself, or for anyone who uses this computer:
Everyone
Just me
Cancel
< Back
Next >

The default folder is recommended.

Please select :
"Everyone" if you want all users may access to the USB Prog software
or
"Just me" if you want to be the only one user to access the USB Prog software.

Then click on ***Next*** button.

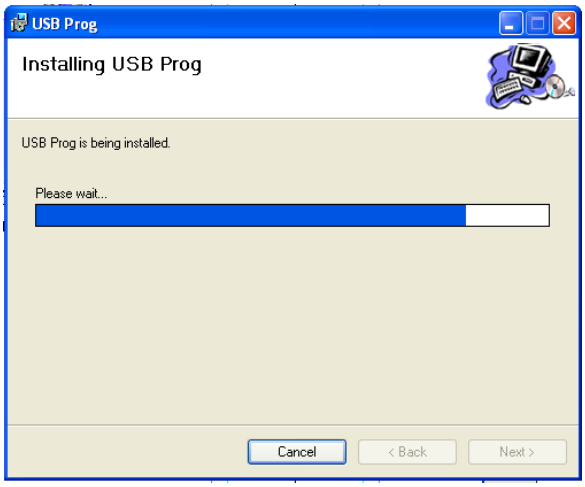
The following window is opened:


USB Prog
Confirm Installation
The installer is ready to install USB Prog on your computer.
Click "Next" to start the installation.
Cancel
< Back
Next >

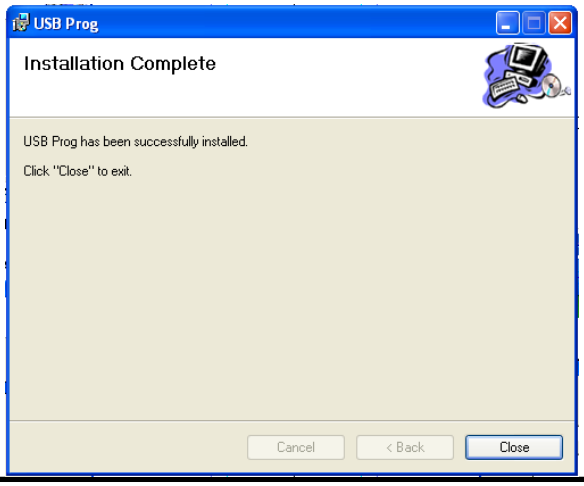
Click on the ***Next*** button to run the file installation.

The following screen is displayed.

Please wait until the procedure is finished.



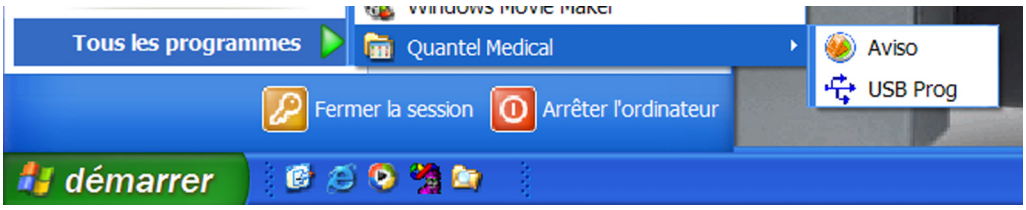
When the window ***Installation Complete*** is displayed, click on ***Close*** button to close the windows and finish the installation.



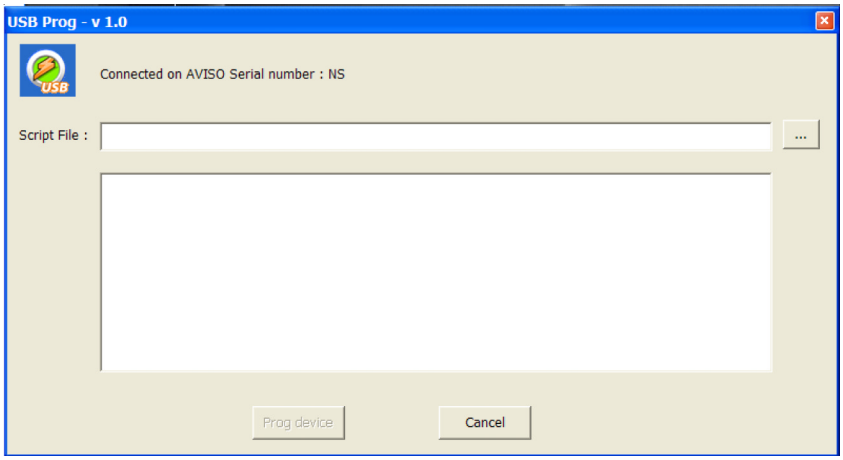
6- SOFTWARE

Release the module software:

The previous installation creates a shortcut (USB Prog) under ***Quantel Medical*** in the ***Start*** menu.

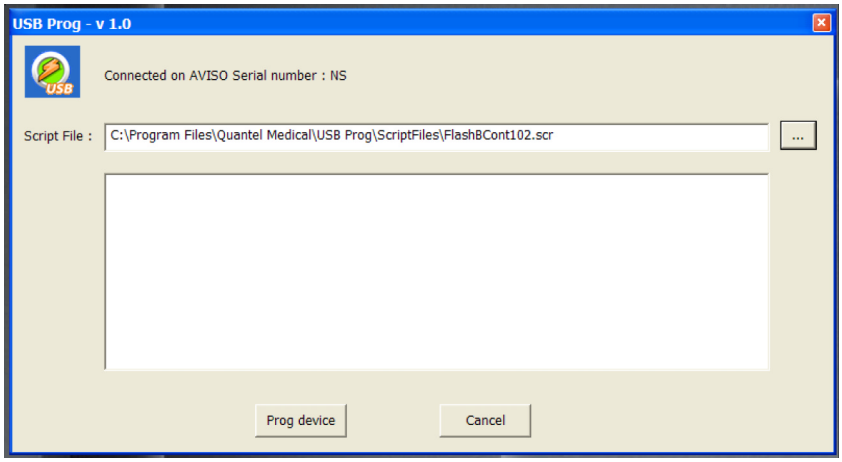


Click on this shortcut, the following window is opened.



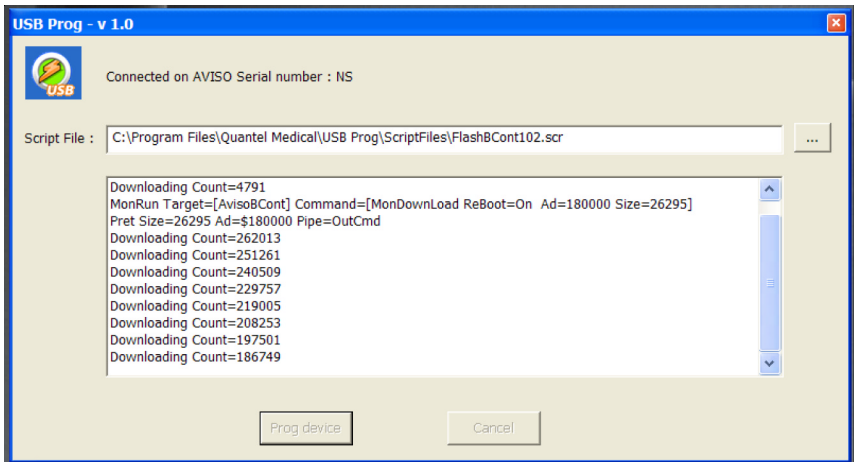
Check that the USB link is performed between the Aviso module and the computer. The Aviso module has to be started.

Choose the ***FlashBCont102.scr*** script. This file is in the SciptFiles folder under C:\Program Files\Quantel Medical\USB Prog.



Click on the ***Prog Device*** button.

The progress state is visualized on the window.



At the end of the procedure, the module restarts. **You have to wait that the *Prog Device* and *Cancel* buttons are activated**. So, you can close the window.

7- VALIDATION

Version	3.xx
Publication date	April 2009
Revision date	April 2009
Written by R. DION	
Checked by C. CHABRIER	
Validated by P. QUERO	